Docket No. 56383 (70301)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	SONNENBERG, et al.		
SERIAL NO.	09/937,107	GROUP:	1765
FILED:	September 19, 2001	EXAMINER:	M. Song
FOR:	DEVICE FOR PRODUCING MONOCRYSTALS		

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CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: **BOX NON-FEE AMENDMENT,** Commissioner for Patents, Washington, D.C. 20231 on March 3rd, 2003.

By: Denise A. Rose
DENISE A. ROSE

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BOX NON-FEE AMENDMENT
ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, DC 20231

Sir:

REQUEST FOR RECONSIDERATION

In the Office Action dated December 3, 2002, claims 14-39 are pending and claims 14-39 are rejected. Reconsideration is requested for at least the following reasons.

A supplemental Information Disclosure Statement is being submitted herewith. The supplemental IDS provides a concise explanation of the relevance of DE 3220285A1 as well as additional references of which Applicant is aware.

Claims 14-39 are rejected under 35 U.S.C. §103(a) over Althaus et al (J. Crystal Growth 166 (1996) pp 566-571) in view of Sakurada et al (US 6,071,337).

Althaus et al discloses a device for producing a monocrystal from a melt of raw material with a heating appliance for generating a temperature gradient within the melt of raw material, wherein the heating appliance comprises a rotationally symmetrical furnace with a rotation axis (M) and with an essentially level floor heater and an essentially level cover heater that can be controlled to different temperatures. As stated by the Examiner, the structure of Althaus et al is designed with a floor heater that controls heat to "shift a growth front upwards", i.e., in the axial direction.

The present application describes and claims a device for producing a monocrystal by growing the monocrystal from a melt of raw materials with a heating appliance for generating a temperature gradient within the melt of raw material, wherein the heating appliance comprises a rotationally symmetrical furnace with a rotation axis (M) and with an essentially level floor heater and an essentially level cover heater that can be controlled to different temperatures, the device further comprising an insulating device that is structured and arranged in such a way that a heat flow in a radial direction perpendicular to the rotation axis (M) of the furnace can be controlled at a preset rate.

It can be seen that Althaus et al ***fails*** to teach or suggest an insulation device that is structured and arranged in a way that a heat flow in a radial direction perpendicular to the rotation axis of the furnace can be controlled at a preset rate

(independent claim 14). Nor does Altahaus et al teach or suggest an insulating device that is structured and arranged to provide an insulating effect having gradient from the cover to the floor heater (claim 15). The gradient in Althaus apparently is provided solely by controlling the floor heater.

Sakurada et al discloses a structure where a portion of a heat insulating cylinder with a tapered cone body is located above the upper end of the heater. This structure is so configured that the inner diameter gradually decreases towards the top. As stated by Sakurada et al, by this structure, "heat generated by the heater 4 is efficiently prevented from escaping vertically upward, and a temperature distribution in this area can be made more uniform without a point of inflection" (Col. 6, lines 44-52). Thus, it is clear the structure of Sakuada does not provide "an insulating device that is structured and arranged in such a way that a heat flow in a radial direction perpendicular to the rotation axis (M) of the furnace can be controlled at a preset rate," as claimed herein (see claim 14).

Further, there are the following differences between the device for producing monocrystals according to present invention (e.g., claims 14, 32) and the apparatus according to Sakurada et al:

a) The device according to the present application (and of Althaus et al) is an apparatus for producing crystals from a melt with a heating appliance for generating a temperature gradient within the melt of raw material using a cover heater and a floor heater. This apparatus is usually referred to as a vertical Bridgman

furnace. In contrast to that, Sakurada et al discloses an apparatus for producing a crystal by the Czochralski method, where the crystal is pulled out from a melt in a crucible without any intentional temperature gradient resulting in crystal growth being above the crucible.

b) The problem which is solved by the insulation device according to the present application is a different one as the one which is solved by the heat insulating cylinder according to Sakurada et al. While the insulation device according to the present application makes it possible to prevent radial heat flow, which corresponds to a temperature gradient in a radial direction, the heat insulating cylinder according to Sakurada et al has been introduced to control the temperature gradient along the vertical axis perpendicular to the radial direction.

c) In contrast to the insulation device according to the present application the heat insulating cylinder according to Sakurada et al has no influence on the temperature gradient in the melt, but only on the crystal outside of the melt.

d) The insulation device according tot he present application is placed at a different position relative to the side heater when compared with the heat insulating cylinder according to Sakurada et al.

e) In contrast to the device for producing monocrystals according to claim 14 of the present application, the apparatus according to Sakurada et al has no cover heater and no floor heater.

Thus, because they involve two entirely different techniques for growing a monocrystal, it is not seen how the disclosures of Althaus et al and Sakurada et al would have been combined by one of ordinary skill in the art. Further, even if a

combination were tried, as discussed above, the combination would not have resulted in the present invention. For example, neither Althaus et al nor Sakurada et al provide even a hint of a suggestion for "an insulation device that is structured and arranged in a way that a heat flow in a radial direction perpendicular to the rotation axis of the furnace can be controlled at a preset rate," as set forth in the present claims.

Applicants respectfully submit that there is no hint at all in the cited references, taken alone or together, why the person of ordinary skill in the art would have combined the references. Much less is there any hint of a suggestion in the cited references, taken alone or together, to change the position of the heat insulation cylinder relative to the side wall heater to solve the problem which is solved by the device for producing monocrystals according to present invention.

In view of the discussion above, it is respectfully submitted that the present application is in condition for allowance. An early reconsideration and notice of allowance are earnestly solicited.

Respectfully submitted,

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